Permeation Breakthrough Time

Permeation breakthrough times according to EN374-3:2003 (minutes)

Glove :

TouchNTuff® 92-600

	Chemical Agent	Breakthrough Time	Protection Index	CAS Number	Notified Body	EN Standard
	1,1,1-trichloro-2-methyl-2-popyl alcohol in Peanut oil	> 480	6		Centexbel	374-3:2003
	1-Methoxy-2-Propanol	14	1	107-98-2	Centexbel	374-3:2003
	Acetic Acid, Glacial	7	0	64-19-7	Satra	374-3:2003
	Acetonitrile 73% + Methyl Alcohol 25% + Ammonia 2%	1	0		Centexbel	374-3:2003
	Acrylamide, 40%	> 480	6	79-06-1	Force Technology	374-3:2003
	Acrylic Acid	< 5	0	79-10-7	Centexbel	374-3:2003
	Allylchloride	< 5	0	107-05-1	Centexbel	374-3:2003
	Ammonium Hydroxide, 25%	29	1	1336-21-6	Centexbel	374-3:2003
	Anioxyde™ 1000	> 480	6	79-21-0	Force Technology	374-3:2003
	Benzyl Alcohol	10	1	100-51-6	Centexbel	374-3:2003
	Bromochloromethane	88	3	74-97-5	Centexbel	374-3:2003
	Butyl Alcohol	56	2	71-36-3	Centexbel	374-3:2003
	Cacodylic acid Sodium salt buffer 0,1M	> 480	6		Centexbel	374-3:2003
	Caffeine 1.6%	> 480	6	58-08-2	Centexbel	374-3:2003
	Carbon disulfide	< 5	0	75-15-0	Centexbel	374-3:2003
	Chlorobutane	< 5	0	25154-42-1	Centexbel	374-3:2003
	Chloroform	0	0	67-66-3	Centexbel	374-3:2003
	Cidex™	> 480	6	111-30-8	Force Technology	374-3:2003
	Cidex™ OPA	> 480	6	643-79-8	Force Technology	374-3:2003

Permeation breakthrough times according to EN374-3:2003 (minutes)						
0	1	2	3	4	5	6
< 10	10-30	30-60	60-120	120-240	240-480	> 480
Not recommended	Splash protection		Medium protection		High protection	

Data given in the table above are based on results of laboratory tests performed on the palm area of the glove or are based on extrapolations from the results of laboratory tests. These tests were run using standard test methods that may not adequately replicate any specific conditions of end use. Because Ansell has no detailed knowledge or control over the conditions of end use, any of these data must be advisory only, and Ansell must decline any liability.

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Permeation breakthrough times according to EN374-3:2003 (minutes)

Glove :

TouchNTuff® 92-600

	Chemical Agent	Breakthrough Time	Protection Index	CAS Number	Notified Body	EN Standard
	Cyclohexane	> 480	6	110-82-7	Centexbel	374-3:2003
	Cyclohexanone	< 5	0	108-94-1	Centexbel	374-3:2003
	Dibromoethane	< 1	0	106-93-4	Centexbel	374-3:2003
	Dibromomethane	< 5	0	74-95-3	Centexbel	374-3:2003
	Dichloroethane	< 1	0		Centexbel	374-3:2003
	Diesel fuel	> 480	6	68334-30-5	Centexbel	374-3:2003
	Diethyl ether	< 1	0	60-29-7	Centexbel	374-3:2003
	Diethylamine	1	0	109-89-7	Centexbel	374-3:2003
	Dimethyl Sulfoxide	5	0	67-68-5	Centexbel	374-3:2003
	Dimethylformamide	< 5	0	68-12-2	Centexbel	374-3:2003
	Ditranol 0,7% in liquid paraffin thin	1.6	0		Centexbel	374-3:2003
	Ethanol, 70%	27	1	64-17-5	Centexbel	374-3:2003
	Ethanol, 95%	16	1	64-17-5	Centexbel	374-3:2003
	Ethidium bromide in water (saturated, ± 5%)	> 480	6	1239-45-8	Centexbel	374-3:2003
	Ethyl Acetate	1	0	141-78-6	Centexbel	374-3:2003
	Ethyl acetate 86% + Methyl Alcohol 9% + Ammonia 5%	1	0		Centexbel	374-3:2003
	Formaldehyde 4% in Phosphatebuffer	> 480	6	50-00-0	Centexbel	374-3:2003
	Formaldehyde, 24.5%	> 480	6	50-00-0	Centexbel	374-3:2003
	Formaldehyde, 35%	> 480	6	50-00-0	Centexbel	374-3:2003

Permeation breakthrough times according to EN374-3:2003 (minutes)						
0	1	2	3	4	5	6
< 10	10-30	30-60	60-120	120-240	240-480	> 480
Not recommended	Splash protection		Medium protection		High protection	

Data given in the table above are based on results of laboratory tests performed on the palm area of the glove or are based on extrapolations from the results of laboratory tests. These tests were run using standard test methods that may not adequately replicate any specific conditions of end use. Because Ansell has no detailed knowledge or control over the conditions of end use, any of these data must be advisory only, and Ansell must decline any liability.

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Permeation breakthrough times according to EN374-3:2003 (minutes)

Glove :

TouchNTuff® 92-600

	Chemical Agent	Breakthrough Time	Protection Index	CAS Number	Notified Body	EN Standard
	Gasoline	84	3	8006-61-9	Centexbel	374-3:2003
	Glutaraldehyde, 50%	> 480	6	111-30-8	Centexbel	374-3:2003
	Glutaric dialdehyde 2,5%, cacodylic acid, sodium salt	> 480	6		Centexbel	374-3:2003
	Heptane	> 480	6	142-82-5	Centexbel	374-3:2003
	Heptane 98% + 1-butyl alcohol 2%	9	0	142-82-5	Centexbel	374-3:2003
	Heptane 98% + 3-methyl-1-butyl alcohol 2%	16	1	142-82-5	Centexbel	374-3:2003
	Hexane	> 480	6	110-54-3	Centexbel	374-3:2003
	Hydrochloric Acid, 37%	51	2	7647-01-0	Centexbel	374-3:2003
	Hydrofluoric Acid, 48%	< 5	0	7664-39-3	Centexbel	374-3:2003
	Hydrogen Bromide, 49%	> 480	6	10035-10-6	Centexbel	374-3:2003
	Hydrogen Peroxide, 30%	41	2	7722-84-1	Centexbel	374-3:2003
	Iso-Octane	> 480	6	540-84-1	Centexbel	374-3:2003
	Isopropanol	117	3	67-63-0	Centexbel	374-3:2003
	Isopropanol 70% (Ipasept)	178	4	67-63-0	Centexbel	374-3:2003
	Kerosene	> 480	6	64742-81-0	Centexbel	374-3:2003
	Methanol	1	0	67-56-1	Centexbel	374-3:2003
	Methyl Isobutyl Ketone	1	0	108-10-1	Centexbel	374-3:2003
	Methyl Sulfoxide 5% in Citratebuffer	> 480	6		Centexbel	374-3:2003
	Methyl ethyl ketone	< 5	0	78-93-3	Centexbel	374-3:2003

Permeation breakthrough times according to EN374-3:2003 (minutes)						
0	1	2	3	4	5	6
< 10	10-30	30-60	60-120	120-240	240-480	> 480
Not recommended	Splash protection		Medium protection		High protection	

Data given in the table above are based on results of laboratory tests performed on the palm area of the glove or are based on extrapolations from the results of laboratory tests. These tests were run using standard test methods that may not adequately replicate any specific conditions of end use. Because Ansell has no detailed knowledge or control over the conditions of end use, any of these data must be advisory only, and Ansell must decline any liability.

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Permeation breakthrough times according to EN374-3:2003 (minutes)

Glove :

TouchNTuff® 92-600

	Chemical Agent	Breakthrough Time	Protection Index	CAS Number	Notified Body	EN Standard
	Methyl sulfoxide 20% in RPMI 1640 culture 80%	> 480	6		Centexbel	374-3:2003
	Methyl-t-butyl Ether	14	1	1634-04-4	Centexbel	374-3:2003
	Methylmethacrylate	2	0	80-62-6	Force Technology	374-3:2003
	Methylviolet 1%	> 480	6	8004-87-3	Centexbel	374-3:2003
	Nicotine	25	1	54-11-5	Force Technology	374-3:2003
	Nitric Acid, 50%	9	0	7697-37-2	Centexbel	374-3:2003
	Nitric Acid, 70%	< 5	0	7697-37-2	Centexbel	374-3:2003
	Peracetic acid, 39%	9	0	79-21-0	Force Technology	374-3:2003
	Perchloroethylene	8	0	127-18-4	Centexbel	374-3:2003
	Potassium permanganate 5%	120	4	7722-64-7	Centexbel	374-3:2003
	Salicylic acid 2% in Peanut oil	> 480	6		Centexbel	374-3:2003
	Sodium Hydroxide, 50%	> 480	6	1310-73-2	Centexbel	374-3:2003
	Sulphuric acid, 50%	> 480	6	7664-93-9	Centexbel	374-3:2003
	Sulphuric acid, 99-100%	1	0	7664-93-9	Centexbel	374-3:2003
	Tetrahydrofuran	< 5	0	109-99-9	Centexbel	374-3:2003
	Tetrahydrofuran/n-Heptan, ratio:60%-40%	<5	0		Centexbel	374-3:2003
	Toluene	1	0	108-88-3	Centexbel	374-3:2003
	Triethylamine	155	4	121-44-8	Centexbel	374-3:2003
	White Spirit	285	5	64742-88-7	Centexbel	374-3:2003

Permeation breakthrough times according to EN374-3:2003 (minutes)						
0	1	2	3	4	5	6
< 10	10-30	30-60	60-120	120-240	240-480	> 480
Not recommended	Splash protection		Medium protection		High protection	

Data given in the table above are based on results of laboratory tests performed on the palm area of the glove or are based on extrapolations from the results of laboratory tests. These tests were run using standard test methods that may not adequately replicate any specific conditions of end use. Because Ansell has no detailed knowledge or control over the conditions of end use, any of these data must be advisory only, and Ansell must decline any liability.

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Permeation breakthrough times according to EN374-3:2003 (minutes)

Glove :

TouchNTuff® 92-600

	Chemical Agent	Breakthrough Time	Protection Index	CAS Number	Notified Body	EN Standard
	Xylene	< 5	0	1330-20-7	Centexbel	374-3:2003
	n-Undecane	> 480	6	1120-21-4	Centexbel	374-3:2003

Permeation breakthrough times according to EN374-3:2003 (minutes)						
0	1	2	3	4	5	6
< 10	10-30	30-60	60-120	120-240	240-480	> 480
Not recommended	Splash protection		Medium protection		High protection	

Data given in the table above are based on results of laboratory tests performed on the palm area of the glove or are based on extrapolations from the results of laboratory tests. These tests were run using standard test methods that may not adequately replicate any specific conditions of end use. Because Ansell has no detailed knowledge or control over the conditions of end use, any of these data must be advisory only, and Ansell must decline any liability.

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Permeation breakthrough times and degradation data according to EN ISO 374:2016

TouchNTuff® 92-600

	Chemical agent	CAS Number	Breakthrough Time (min)	Protection Index	Degradation (%)	Part
	Heptane	142-82-5	> 480	6	2.8	Palm
	Sodium Hydroxide, 40%	1310-73-2	> 480	6	-41.6	Palm
	Hydrogen Peroxide, 30 %	7722-84-1	33	2	34.3	Palm
	Formaldehyde 37%	50-00-0	> 480	6	0.9	Palm

Permeation breakthrough times according to EN ISO 374:2016						
0	1	2	3	4	5	6
< 10	10-30	30-60	60-120	120-240	240-480	> 480
Not recommended	Splash protection		Medium protection		High protection	

Data given in the table above are based on results of laboratory tests performed on the palm area of the glove or on the cuff area if relevant. These tests were run using standard test methods that may not adequately replicate any specific conditions of end use. Because Ansell has no detailed knowledge or control over the conditions of end use, any of these data must be advisory only, and Ansell must decline any liability.

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CHEMICAL GUARDIAN

July 27, 2018

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Legend

Permeation Breakthrough Times (min)	
<10	Not Recommended
10-30	Splash Protection
30-60	Splash Protection
60-120	Medium Protection
120-240	Medium Protection
240-480	Good Protection
>480	Good Protection

Permeation breakthrough times evaluate the time necessary for a chemical to pass through a glove material.

Disclaimer

Recommendations are based on extrapolations from laboratory test results and information regarding the composition of chemicals and may not adequately represent specific conditions of end use. Synergistic effects of mixing chemicals have not been accounted for. For these reasons, and because Ansell has no detailed knowledge of or control over the conditions of end use, any recommendation must be advisory only and Ansell fully disclaims any liability including warranties related to any statement contained herein.

Permeation Breakthrough Times

The permeation breakthrough times present in this chart were evaluated according to the EN374 standard.

Material				LLDPE	Nitrile	Nitrile	Nitrile	Nitrile/Neoprene
Thickness (mm)				0.062	0.11	0.12	0.12	0.19
Product Name / Style				Barrier	TouchNTuff	Microflex	TouchNTuff	Microflex
Type	CAS	Chemical name	%	02-100	92-670.665	93-850	92-500.600.605 / 93-250.300.700	93-260
sgl	108-65-6	1-Methoxy-2-Propylacetate	100	>480'	<10'	<10'	<10'	30-60'
sgl	64-19-7	Acetic acid, glacial	100	158'	<5'	8'	7'	30'
sgl	67-64-1	Acetone	100	>480'	<10'	1'	<10'	3'
sgl	75-05-8	Acetonitrile	100	>480'	<10'	2'	<5'	5'
sgl	79-10-7	Acrylic acid	100	>480'	<10'	<10'	<5'	10-30'
sgl	107-13-1	Acrylonitrile	100	>480'	<10'	<10'	<10'	3'
sgl	107-18-6	Allylalcohol	100	>480'	<10'	<10'	<10'	10-30'
sgl	1336-21-6	Ammonium hydroxide	25	27'	8'	10-30'	29'	51'
sgl	71-43-2	Benzene	100	>480'	<10'	2'	<10'	5'
sgl	80-05-7	Bisphenol A	100	>480'	>480'	>480'	>480'	>480'
sgl	590-92-1	Bromopropionic acid	100	>480'	60-120'	60-120'	60-120'	>480'
sgl	123-86-4	Butyl acetate	100	>480'	<10'	<10'	<10'	10-30'
sgl	111-76-2	Butylglycol	100	>480'	10-30'	10-30'	10-30'	240-480'
sgl	75-15-0	Carbon disulfide	100	>480'	<10'	1'	<5'	1'
sgl	56-23-5	Carbon tetrachloride	100	240-480'	<10'	28'	<10'	39'
sgl	67-66-3	Chloroform	100	17'	<10'	1'	<10'	3'
sgl	8007-45-2	Coal tar	100	>480'	240-480'	240-480'	240-480'	>480'
sgl	68308-34-9	Crude oil	100	>480'	240-480'	240-480'	240-480'	>480'
sgl	108-93-0	Cyclohexanol	100	>480'	60-120'	120-240'	120-240'	>480'
sgl	108-94-1	Cyclohexanone	100	>480'	<10'	5'	<5'	10'

Permeation Breakthrough Times

The permeation breakthrough times present in this chart were evaluated according to the EN374 standard.

Material				LLDPE	Nitrile	Nitrile	Nitrile	Nitrile/Neoprene
Thickness (mm)				0.062	0.11	0.12	0.12	0.19
Product Name / Style				Barrier	TouchNTuff	Microflex	TouchNTuff	Microflex
Type	CAS	Chemical name	%	02-100	92-670.665	93-850	92-500.600.605 / 93-250.300.700	93-260
sgl	84-74-2	Dibutylphthalate	100	>480'	60-120'	120-240'	120-240'	>480'
sgl	68334-30-5	Diesel LS	100	>480'	240-480'	>480'	>480'	>480'
sgl	109-89-7	Diethylamine	100	>480'	<10'	3'	1'	6'
sgl	110-85-0	Diethylenediamine	100	>480'	>480'	>480'	>480'	>480'
sgl	68-12-2	Dimethylformamide	100	>480'	<10'	<10'	<5'	9'
sgl	67-68-5	Dimethylsulfoxide	100	>480'	<10'	21'	5'	93'
sgl	64742-47-8	Distillate (petroleum), hydrotreated light	100	>480'	240-480'	240-480'	240-480'	>480'
sgl	141-43-5	Ethanolamine	100	>480'	>480'	>480'	>480'	>480'
sgl	110-80-5	Ethyl Glycol	100	>480'	10-30'	30-60'	30-60'	120-240'
sgl	141-78-6	Ethyl acetate	100	>480'	<10'	2'	1'	5'
sgl	64-17-5	Ethyl alcohol	100	>480'	<10'	25'	<10'	130'
sgl	64-17-5	Ethyl alcohol	50	>480'	60-120'	60-120'	60-120'	>480'
sgl	64-17-5	Ethyl alcohol	96	>480'	<10'	53'	<10'	60-120'
sgl	111-15-9	Ethyl glycol ethyl ether acetate	100	>480'	10-30'	10-30'	10-30'	30-60'
sgl	75-04-7	Ethylamine	100	>480'	10-30'	10-30'	10-30'	13'
sgl	107-21-1	Ethylene Glycol	100	>480'	30-60'	30-60'	30-60'	>480'
sgl	50-00-0	Formaldehyde	35	>480'	>480'	>480'	>480'	>480'
sgl	64-18-6	Formic acid	98	>480'	<10'	<10'	<10'	10-30'
sgl	76-13-1	Freon TF	100		10-30'	30-60'	30-60'	>480'
sgl	96-48-0	Gamma-Butyrolactone	100	>480'	<10'	<10'	<10'	<10'

Permeation Breakthrough Times

The permeation breakthrough times present in this chart were evaluated according to the EN374 standard.

Material				LLDPE	Nitrile	Nitrile	Nitrile	Nitrile/Neoprene
Thickness (mm)				0.062	0.11	0.12	0.12	0.19
Product Name / Style				Barrier	TouchNTuff	Microflex	TouchNTuff	Microflex
Type	CAS	Chemical name	%	02-100	92-670.665	93-850	92-500.600.605 / 93-250.300.700	93-260
sgl	8006-61-9	Gasoline	100	>480'	30-60'	60-120'	84'	120-240'
sgl	111-30-8	Glutaraldehyde, 50%	50	>480'	>480'	>480'	>480'	>480'
sgl	142-82-5	Heptane	100	>480'	>480'	>480'	>480'	>480'
sgl	999-97-3	Hexamethyldisilazane	100	>480'	240-480'	240-480'	240-480'	>480'
sgl	7647-01-0	Hydrochloric acid	37	>480'	75'	204'	51'	>480'
sgl	7664-39-3	Hydrofluoric Acid	48	>480'	<10'	<10'	<5'	93'
sgl	7722-84-1	Hydrogen peroxide	30	>480'	9'	>480'	209'	446'
sgl	540-84-1	Isooctane	100	>480'	240-480'	>480'	>480'	>480'
sgl	78-59-1	Isophorone	100	>480'	10-30'	30-60'	30-60'	60-120'
sgl	67-63-0	Isopropanol	100	>480'	42'	242'	117'	380'
sgl	67-63-0	Isopropanol	70	>480'	120-240'	120-240'	178'	240-480'
sgl	64742-81-0	Kerosene, hydrodesulphurised	100	>480'	120-240'	>480'	>480'	>480'
sgl	110-16-7	Maleic acid, saturated aqueous solution	99	>480'	>480'	>480'	>480'	>480'
sgl	108-10-1	Methyl Isobutyl Ketone	100	>480'	<10'	<10'	1'	<10'
sgl	96-33-3	Methyl acrylate	100	>480'	<10'	<10'	<10'	<10'
sgl	67-56-1	Methyl alcohol	100	>480'	<10'	6'	1'	22'
sgl	78-93-3	Methyl ethyl ketone	100	>480'	<10'	1'	<5'	3'
sgl	80-62-6	Methyl methacrylate	100	>480'	<10'	<10'	2'	<10'
sgl	1634-04-4	Methyl tert-Butyl Ether	100	>480'	10-30'	10-30'	14'	240-480'
sgl	74-89-5	Methylamine, 40% aqueous solution	40	>480'	10-30'	30-60'	30-60'	240-480'

Permeation Breakthrough Times

The permeation breakthrough times present in this chart were evaluated according to the EN374 standard.

Material				LLDPE	Nitrile	Nitrile	Nitrile	Nitrile/Neoprene
Thickness (mm)				0.062	0.11	0.12	0.12	0.19
Product Name / Style				Barrier	TouchNTuff	Microflex	TouchNTuff	Microflex
Type	CAS	Chemical name	%	02-100	92-670.665	93-850	92-500.600.605 / 93-250.300.700	93-260
sgl	75-09-2	Methylene chloride	100	16'	<10'	1'	<10'	2'
sgl	8012-95-1	Mineral oil	100	>480'	240-480'	240-480'	240-480'	>480'
sgl	872-50-4	N-Methyl-2-pyrrolidone	100	>480'	<10'	<10'	<1'	7'
sgl	8030-30-6	Naphtha	100	>480'	240-480'	240-480'	240-480'	>480'
sgl	64742-82-1	Naphtha (petroleum), hydrodesulfurized heavy	100	>480'	240-480'	240-480'	240-480'	>480'
sgl	64742-49-0	Naphtha, petroleum, hydrotreated light	100	>480'	240-480'	240-480'	240-480'	>480'
sgl	7697-37-2	Nitric acid	70	>480'	<5'	5'	<5'	39'
sgl	98-95-3	Nitrobenzene	100	>480'	<10'	<10'	<10'	30-60'
sgl	111-87-5	Octyl alcohol	100	>480'	60-120'	120-240'	120-240'	240-480'
sgl	144-62-7	Oxalic acid, saturated solution	99	>480'	>480'	>480'	>480'	>480'
sgl	79-21-0	Peracetic acid	39	>480'	<10'	<10'	<10'	30'
sgl	108-95-2	Phenol, liquified	90	>480'	<10'	<10'	<10'	10-30'
sgl	108-90-7	Phenyl chloride	100	>480'	<10'	<10'	<10'	<10'
sgl	7664-38-2	Phosphoric acid	100	>480'	>480'	>480'	>480'	>480'
sgl	107-12-0	Propionitrile	100	>480'	<10'	<10'	<10'	<10'
sgl	57-55-6	Propylene Glycol	100	>480'	30-60'	30-60'	30-60'	>480'
sgl	107-98-2	Propylene Glycol-1-methylether	100	>480'	6'	10-30'	14'	30-60'
sgl	110-86-1	Pyridine	100	>480'	<10'	<10'	<10'	<10'
sgl	1310-73-2	Sodium Hydroxide	50	>480'	>480'	>480'	>480'	>480'
sgl	8052-41-3	Stoddard solvent	100	>480'	240-480'	>480'	240-480'	>480'

Permeation Breakthrough Times

The permeation breakthrough times present in this chart were evaluated according to the EN374 standard.

Material				LLDPE	Nitrile	Nitrile	Nitrile	Nitrile/Neoprene
Thickness (mm)				0.062	0.11	0.12	0.12	0.19
Product Name / Style				Barrier	TouchNTuff	Microflex	TouchNTuff	Microflex
Type	CAS	Chemical name	%	02-100	92-670.665	93-850	92-500.600.605 / 93-250.300.700	93-260
sgl	100-42-5	Styrene	100	>480'	<10'	<1'	<10'	<10'
sgl	7664-93-9	Sulphuric acid	96	>480'	<10'	12'	10-30'	49'
sgl	127-18-4	Tetrachloroethylene	100	>480'	<5'	<10'	8'	60-120'
sgl	109-99-9	Tetrahydrofuran	100	>480'	<10'	2'	<5'	3'
sgl	110-01-0	Tetrahydrothiophen	100	>480'	<10'	<10'	<10'	<10'
sgl	7719-09-7	Thionyl chloride	100	120-240'	<10'	<10'	<10'	<10'
sgl	108-88-3	Toluene	100	>480'	<10'	3'	1'	6'
sgl	79-01-6	Trichloroethylene	100	>480'	<10'	2'	<10'	4'
sgl	1330-78-5	Tricresyl phosphate, isomeric mixture	100	>480'	>480'	>480'	>480'	>480'
sgl	102-71-6	Triethanolamine	100	>480'	60-120'	60-120'	60-120'	240-480'
sgl	121-44-8	Triethylamine	100	>480'	66'	120-240'	155'	>480'
sgl	64742-88-7	White spirit	100	>480'	120-240'	240-480'	285'	240-480'
sgl	1330-20-7	Xylene, isomeric mixture	100	>480'	<5'	5'	<5'	12'
sgl	98-88-4	benzoyl chloride	100	>480'	<10'	<10'	<10'	<10'
sgl	71-36-3	n-Butanol	100	>480'	39'	>480'	56'	>480'
sgl	110-54-3	n-Hexane	100	>480'	450'	>480'	>480'	>480'
sgl	71-23-8	n-Propanol	100	>480'	10-30'	98'	21'	200'
sgl	109-60-4	n-Propyl acetate	100	>480'	<10'	<10'	<10'	<10'
sgl	1120-21-4	n-Undecane	100	>480'	240-480'	>480'	>480'	>480'

What gloves work with Phenol?

Phenol/Physical Form:
Phenol is a solid at room temperature. However, pure liquid phenol (or molten phenol) exists from around 40.5 °C and above. Solid phenol is Colorless to light-pink, crystalline solid with a sweet, acrid odor. Phenol solution, [aqueous] is a white crystalline mass dissolved in an aqueous solution. Solution may be colorless to slightly pink in color with a distinctive phenol odor; sharp burning taste. Phenol, liquid is a colorless liquid when pure, otherwise pink or red.

Risks:
Phenol is a Mutagen. It is very toxic; Ingestion of 1 gm is lethal to humans. Lethal amounts may be absorbed through skin. Due to this hazardous nature, phenol is not allowed to test in every lab above the 10% concentration. The labs must be qualified to test this chemical above 10%.

Gloves Recommendations:

Room temperature:

100% Solid phenol at room temperature:
All gloves will work including disposables, but keep in mind due to the hazardous nature always be mindful about disposables (check for pinholes in the gloves).

10% phenol: at room temperature
At this concentration and room temperature we recommend the following gloves:
Solvex® 37-900, 37-695 or 37-186, AlphaTec® 58-335,58-435,58-330,58-530,58-535, Barrier® 02-100 or any of the neoprene gloves (Disposal gloves can also be used, but we recommend these for splash protection).*

85% phenol at room temperature:
At this concentration and room temperature we recommend the following gloves:
Barrier® 02-100, Neoprene® 29-865, Scorpio® 08-352 and 08-354, Bicolour 87-900, Chemi-Pro® 87-224 and Neotop® 29-500.*

At elevated temperatures:

Liquefied Phenol at 45C
At this temperature Butyl gloves *Chemtek™ 38-514 and Viton/Butyl gloves Chemtek™ 38-628* can be used for full protection.

30% liquefied phenol at 70C
At this temperature, liquefied phenol is very hazardous and we can use thick *Viton/Butyl gloves Chemtek™ 38-628.* This also doesn't provide full protection for longer times, this needs to be changed as soon as you see any hint of degradation.
Scorpio® 08-354, Solvex® 37-675, PVA® 15-554 and Barrier® 02-100 can be used for splash protection and need to be changed as soon as there is contact of chemical.

50% liquefied phenol at 70C
At this temperature, liquefied phenol is very hazardous and we can use thick *Viton/Butyl gloves Chemtek™ 38-628.* This also doesn't provide full protection for longer times, this needs to be changed as soon as you see any hint of degradation.
Chemtek™ 38-514 can be used for splash protection~~s~~ and needs to be changed as soon as there is contact of chemical.

Liquefied phenol at 70C
At this temperature, liquefied phenol is very hazardous and we can use thick *Viton/Butyl gloves Chemtek™ 38-628*. This also doesn't provide full protection for longer times, this needs to be changed as soon as you see any hint of degradation.

What gloves work with Phenol?

The following gloves have been tested at third party labs as per both ASTM F732 and EN 374 standard:

	Barrier®		PVA®		Chemtek™		Chemtek™		Solvex®		Scorpio®		Duzmor®		Microflex ®	
	02-100		15-554		38-514		38-628		37-675		08-354		87-600		93-260	
Permeation Breakthrough time (min)	ASTM	EN	ASTM	EN	ASTM	EN	ASTM	EN	ASTM	EN	ASTM	EN	ASTM	EN	ASTM	EN
100% phenol at 70C	<6	<6			15	25	101	170								
50% phenol at 70C	<6	<6			22	38	77	173			15	21				
30% phenol at 70C	8	19			24	37	77	295	<6	<6	14	23	<6	<6	<6	<6
100% phenol at 45C	44	55	44	51	>480	>480	>480	>480	12	13	45	72	<6	7	<6	<6

Information provided may comprise of experimental data, or estimations based on extrapolations from experimental data. This information is intended to enable the Health and Safety professional at your organization to be able to make more informed decisions about which Ansell products will offer the greatest protection in the intended circumstances, and assist with carrying out a risk assessment for your organization.

We wish to highlight that the permeation times do not equate to safe wear time. Safe wear time may vary depending on whether the PPE is donned correctly, the temperature of the surroundings, the toxicity of the chemical, and a number of other factors. It is the responsibility of your organization's Health and Safety professional to undertake a risk assessment before choosing the appropriate PPE for the task at hand. If you would like to discuss any aspect in more detail, please contact us.

Estimations of the barrier properties of gloves and PPE are based on extrapolations from laboratory test results and information regarding the composition of the chemicals. Synergistic effects of mixing chemicals have not been accounted for. Estimations are subject to change if new testing is carried out providing better grounds for extrapolations. For these reasons, any information provided must be advisory only and Ansell fully disclaims any liability including warranties related to any statement contained herein.

Which gloves can I use to protect against paint-strippers?

Typical paint strippers contain a high amount of the chemical 'Methylene chloride', also called 'Dichloromethane'. This chemical will degrade practically every glove material very quickly. In a lot of applications, the hands are actually immersed in the paint stripper, so the glove has to have a high resistance.

However, most paint strippers also contain water, acid or alcohol, which are likely to degrade the PVA glove. Hence, a glove which protects against immersion and for an extended period of time in such a paint stripper is not available.

- For short contact, Barrier®, ChemTek™ 38-628 and PVA® gloves can be used.
- In some cases, some thick Solvex® gloves (such as 37-900, 37-695, 37-186 or 37-185) could be suitable for very short protection in time but this should be evaluated in your application.

We recommend the usage of special tools for immersion of pieces in a paint stripper, and using any glove only as a splash protection.

What is hydrogen fluoride / hydrofluoric acid? Which gloves are recommended against this chemical?

Hydrogen fluoride corresponds to a very toxic chemical. When pure or at high concentrations, it can cause the loss of limbs or even the death of the end-user, due to the propagation of the gangrene.

Identification

Hydrogen Fluoride	Purest, gaseous form
Hydrofluoric acid	Solution in water, highly corrosive
Anhydrous HF	Purest Liquid form possible = 99%

Risks

Contact poison
Skin burn, Tissue death
Accumulation of Fluorine in the blood can result in cardiac arrest

Role of a PPE

Before selecting any PPE, a basic assessment must be made to identify and evaluate the risk. Where possible, the risk must be reduced or eliminated by a modification of workplace practice. This option is always to be preferred to the use of PPE

Recommendations

Emphasize on eliminating risks before thinking about PPE.
No recommendations to be made for direct contact / immersion.
No indications on usage time in application or reuse of gloves will be given.

Ansell has based the recommendations hereby on an extensive set of permeation breakthrough tests following EN and ASTM standards. If you wish to receive a detailed presentation, please contact your Ansell representative.

Anhydrous HF
ChemTek™ 38-520, ChemTek™ 38-628
Consider double gloving

HF, 60%
ChemTek™ 38-514, 38-520, ChemTek™ 38-628

Scorpio® 08-352 and 08-354, Neotop® 29-500, Neoprene 29-865, Barrier® 02-100 *

HF, 48%
ChemTek™ 38-514, 38-520, ChemTek™ 38-628

Scorpio® 08-352 and 08-354, Bi-Colour® 87-900, Neotop® 29-500, Neoprene 29-865, Barrier® 02-100*

HF, 10%
ChemTek™ 38-514, 38-520, ChemTek™ 38-628

Scorpio® 08-352 and 08-354, Bi-Colour® 87-900, ChemiPro , Neoprene 29-865, Neotop® 29-500, Barrier® 02-100*

DermaShield® 73-701, 73-711, 73-721 (disposable), NeoTouch® 25-101, 25-201 (disposable)

* Offers no mechanical protection, therefore, this glove should be combined with an over-glove